

IN THE CLAIMS

Claim 1 (currently amended): A method for performing defect spatial signature analysis of a semiconductor process, comprising:

- creating a defect database of wafers having defect spatial signatures, wherein the defect spatial signatures in the defect database are uncategorized data;
- generating a recent defect spatial signature; and
- determining if the recent defect spatial signature corresponds to at least one of the defect spatial signatures reconstructed from the defect locations in of the defect database.

Claim 2 (currently amended): The method of claim 1, wherein the defect database contains uncorrelated defect locations data.

Claim 3 (original): The method of claim 2, wherein creating the defect database includes creating a relational database of defects.

Claim 4 (currently amended): The method of claim 3, further including storing coordinates of a process signature of a first type ~~defect~~ and storing coordinates of a process signature of a second type ~~defect~~ from each wafer, wherein the spatial orientation of the coordinates of the process signatures of the first and second types ~~defects~~ are in relation to each other.

Claim 5 (previously presented): The method of claim 3, further including identifying a local density of defects for each wafer using one of a mathematical formulation or a stylus and a pad.

Claim 6 (original): The method of claim 1, further including adding the recent defect spatial signature to the defect database.

Claim 7 (original): The method of claim 1, further including adjusting a process if the recent defect spatial signature corresponds to at least one of the defect spatial signatures of the defect database.

Claim 8 (currently amended): The method of claim 1, wherein creating the defect database includes:

creating a relational database of defects; and
storing coordinates of a process signature of a first type defect and storing coordinates of a process signature of a second type defect, wherein the coordinates of the process signatures of the first and second types defects are relative to each other.

Claim 9 (original): The method of claim 1, wherein the defect spatial signatures are from at least one of particle contamination, mechanical surface damage, wafer spinning processes, scratching, and polishing.

Claim 10 (currently amended): A method for evaluating defect spatial signatures ~~process anomalies~~ in a semiconductor manufacturing process, comprising:

generating a database of defect spatial signatures ~~process anomalies~~, wherein the defect spatial signatures ~~process anomalies~~ are uncorrelated;

inspecting a wafer having at least one defect spatial signature ~~process anomaly~~;
and

determining if the at least one defect spatial signature ~~process anomaly~~ corresponds to a defect spatial signature ~~process anomaly~~ in the database of defect spatial signatures ~~process anomalies~~.

Claim 11 (currently amended): The method of claim 10, further including modifying the semiconductor manufacturing process if the at least one defect spatial signature ~~process anomaly~~ of the inspected wafer corresponds to a defect spatial signature ~~an anomaly~~ in the database of defect spatial signatures ~~process anomalies~~.

Claim 12 (currently amended): The method of claim 10, wherein the defect spatial signatures ~~anomalies~~ are uncategorized.

Claim 13 (currently amended): The method of claim 10, wherein inspecting the wafer includes creating a relational database of defect spatial signatures ~~process anomalies~~ and storing coordinates of defect spatial signatures ~~process anomalies~~ of a first ~~type defect~~ and storing coordinates of defect spatial signatures ~~process anomalies~~ of a second ~~type defect~~.

Claim 14 (previously presented): The method of claim 13, further including identifying a local density of defects for each wafer using one of a mathematical formulation or a stylus and a pad.

Claim 15 (currently amended): A method for determining the occurrence of an anomalous event, comprising:

storing a plurality of defect spatial signatures ~~maps~~ in a storage device, wherein the defect spatial signatures ~~maps~~ are uncorrelated and uncharacterized;

creating a defect spatial signature ~~map~~ of a recent anomalous event; and

determining if the defect spatial signature ~~map~~ of the recent anomalous event corresponds to one of the plurality of defect spatial signatures ~~maps~~ in the storage device.

Claim 16 (canceled)

Claim 17 (currently amended): The method of claim 15, further including modifying a process flow if the defect spatial signature ~~map~~ of the recent anomalous event corresponds to one of the plurality of defect spatial signatures ~~maps~~ in the storage device.

Claim 18 (currently amended): The method of claim 15, wherein creating the defect spatial signature ~~map~~ includes creating a relational database of defects.

Claim 19 (original): The method of claim 18, further including storing coordinates of a process signature of a first defect and storing coordinates of a process signature of a second defect, wherein the coordinates of the process signatures of the first and second defects are in relation to each other.

Claim 20 (previously presented): The method of claim 19, further including identifying a local density of defects for each wafer using one of a mathematical formulation or a stylus and a pad.